



UNIVERSITÀ DEGLI STUDI DI GENOVA

**SCUOLA DI DOTTORATO DI SCIENZE E TECNOLOGIE PER
L'INGEGNERIA**

Dottorato in Fluidodinamica e Processi dell'Ingegneria Ambientale

AVVISO DI SEMINARIO

“Falling Discs”

Dr. Jacques Magnaudet
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Mercoledì 2 Ottobre, 2013 – ore 17:00
Scuola Politecnica, Villa Cambiaso
Aula A11 (presso il DICCA)

Discs falling under gravity (such as coins in water or *confettis* in air) may display a variety of paths, e.g. straight vertical, steady inclined, fluttering or tumbling, depending on their relative inertia, aspect ratio and inertial-to-viscous forces ratio. Recently, a combination of experimental studies, global linear and weakly nonlinear stability analyses and full direct numerical simulations has led to some progress in the understanding of the path instability of this class of bodies and of the associated process of pattern selection. In particular these investigations made it clear that the disc's aspect ratio plays a crucial role in the selection of the nature of the primary instability, making experimental results obtained with thin discs of different aspect ratios hard to compare, in contrast to previous belief. In this talk, I will first comment on some archetypal experimental observations and then discuss the nature of the most unstable modes and primary instability as a function of the disc's geometry and relative inertia, as well as the (sometimes loose) connections between path and wake instability in the linear and nonlinear regimes.

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